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Spatial Decision Support System for Reservoir Water Quality Management- a
Prototype Study

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Abstract

Non-point source pollution from agricultural activities on slope land has resulted in the deterioration of water quality in most reservoirs in Taiwan, and thus how to manage the agricultural activities has become one of the key issues in reservoir water quality management. A spatial decision support system, which integrates a geographic information system, a water quality simulation model, and expert system techniques, provides a useful management tool to evaluate land-use problems in the reservoir watershed. Non-point source pollution caused by the different land-use types can be simulated to evaluate their impact on reservoir water quality. This study proposes a conceptual framework for this decision support system. A prototype system that integrates an ARC/INFO GIS package, an AGNPS model, and an EXSYS Professional expert system shell has also been developed. The system was tested on the Fei-Tsui reservoir watershed near Taipei.